Electron Microscopic Technique & Ultrastructure

ANA 402

By

Abanum Isaac

16/mhs03/001

Question:

1. Discuss the procedure involved in making a glass knife for cutting ultrathin section
2. Draw a knife maker and label it

Procedure in making a glass knife for cutting ultrathin section

1. Wash a new glass strip in the sink with warm water, liquid soap and towel. Stand the strip against the wall while use the towel paper to wash it. Then rinse the strip well in running distilled water. Allow to dry standing up against same wall
2. With gloved hands, place the strip, serrated or rough edge down on the knife maker. Avoid touching the narrow end of the strip, as these will be the knife edges. Position the strip against the white guide plate, which is set at 90 degrees. Also, extend the glass strip as far as the black dot on the knife maker
3. Divide the length of 400mm strip into two useable 200mm strip. Continue to maintain your hold on the glass strip.
4. Lower the clamping head onto the glass strip by flipping the ball headed lever from the back to the front position. This will secure the glass strip in place. Now, remove your hold on the glass.
5. Turn the scoring selector to this symbol for this first major break.
6. The breaking knob should be in the most counter clockwise position at this point.
7. Pull out the scoring shaft all the way. You should hear a faint scratching as the score wheel cuts lightly into the glass.
8. Start turning the breaking knob slowly clockwise. The pressure should soon break the glass. As soon as the strip is broken into two halves, reset the breaking knob completely counter clockwise.
9. Raise the clamping head by flipping the ball lever from the front to the rear position. Then push in the scoring shaft. Finally, remove both glass strips
10. Brush away any glass chips from the knife maker using the small paintbrush

Making glass squares:

1. Reposition one of the 200mm glass strips, serrated side down, back into the knife maker. Brace it against the white guide plate and push the strip against the closest metal stud.
2. Lower the clamping head until it securely touches the glass. Remove your hold on the glass.
3. The scoring selector should be at the same symbol for bisecting glass strips.
4. Place the metal fork under the glass strip near the stud.
5. Raise clamping head with ball lever, push in the scoring shaft and remove the glass square by means of the fork.

Making glass knives or triangles:

1. As soon as a glass square is made, one can go on to make many more squares or one can choose to continue working with the same glass square, by rotating the square in place, counter clockwise degrees. Note the two dimples in one corner of the glass. It is this corner that is braced against the front glass holder. The opposite corner is braced against the rear glass holder. To engage the rear glass holder, turn the left side engaging dial forward or in the clockwise direction. This dial is located on the left of the knife maker.
2. Set the score selector to this symbol for making knives
3. Place the fork under the glass square.
4. Lower the clamping head with the ball lever to secure the glass square.
5. Pull out the scoring shaft to score the glass
6. Turn the damping lever clockwise (to a 6 o’clock position, approximately) until the damping pad just touches the glass.
7. Proceed to slowly turn the breaking knob clockwise until the glass breaks.
8. Once the glass breaks, then reset the breaking knob immediately.
9. Reset the damping lever counter clockwise to its 3 o’clock position.
10. Raise the clamping head and then push in the scoring shaft.
11. Turn the left rear engaging dial backwards or counter clockwise, to release the glass knives.
12. Pick up the two glass knives by means of the metal fork.
13. The glass knives are ready to use or can be stored in a dust free box until ready to use.

